SEQUENCE LISTING

<110> SHAO, Wei et al.

<120> ISOLATED HUMAN TRANSPORTER PROTEINS,
    NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS,
    AND USES THEREOF

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Asp Trp Val Arg Glu Lys Cys Lys Asp Arg Glu Arg His Arg Arg Ile
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61

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68

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72

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74

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76

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79

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80

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<212> PRT
<213> Human

<400> 4
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His Leu Leu Asp Leu Leu Asp Glu Pro Ile Pro Gly Val Gly Thr Tyr
            20                  25                  30
Asp Asp Phe His Thr Ile Asp Trp Val Arg Glu Lys Cys Lys Asp Arg
        35                  40                  45
Glu Arg His Arg Arg Ile Asn Ser Lys Lys Lys Glu Ser Ala Trp Glu
    50                  55                  60
Met Thr Lys Ser Leu Tyr Asp Ala Trp Ser Gly Trp Leu Val Val Thr
65                  70                  75                  80
Leu Thr Gly Leu Ala Ser Gly Ala Leu Ala Gly Leu Ile Asp Ile Ala
```

81

```
                        85                          90                          95
Ala Asp Trp Met Thr Asp Leu Lys Glu Gly Ile Cys Leu Ser Ala Leu
            100                         105                         110
Trp Tyr Asn His Glu Gln Cys Cys Trp Gly Ser Asn Glu Thr Thr Phe
        115                         120                         125
Glu Glu Arg Asp Lys Cys Pro Gln Trp Lys Thr Trp Ala Glu Leu Ile
    130                         135                         140
Ile Gly Gln Ala Glu Gly Pro Gly Ser Tyr Ile Met Asn Tyr Ile Met
145                         150                         155                     160
Tyr Ile Phe Trp Ala Leu Ser Phe Ala Phe Leu Ala Val Ser Leu Val
                        165                         170                         175
Lys Val Phe Ala Pro Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys
            180                         185                         190
Thr Ile Leu Ser Gly Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr
        195                         200                         205
Leu Met Ile Lys Thr Ile Thr Leu Val Leu Ala Val Ala Ser Gly Leu
    210                         215                         220
Ser Leu Gly Lys Glu Gly Pro Leu Val His Val Ala Cys Cys Cys Gly
225                         230                         235                     240
Asn Ile Phe Ser Tyr Leu Phe Pro Lys Tyr Ser Thr Asn Glu Ala Lys
                        245                         250                         255
Lys Arg Glu Val Leu Ser Ala Ala Ser Ala Ala Gly Val Ser Val Ala
            260                         265                         270
Phe Gly Ala Pro Ile Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser
            275                         280                         285
Tyr Tyr Phe Pro Leu Lys Thr Leu Trp Arg Ser Phe Phe Ala Ala Leu
    290                         295                         300
Val Ala Ala Phe Val Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg
305                         310                         315                     320
Leu Val Leu Phe Tyr Val Glu Tyr His Thr Pro Trp Tyr Leu Phe Glu
            325                         330                         335
Leu Phe Pro Phe Ile Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Ala
            340                         345                         350
Phe Phe Ile Arg Ala Asn Ile Ala Trp Cys Arg Arg Arg Lys Ser Thr
            355                         360                         365
Lys Phe Gly Lys Tyr Pro Val Leu Glu Val Ile Ile Val Ala Ala Ile
    370                         375                         380
Thr Ala Val Ile Ala Phe Pro Asn Pro Tyr Thr Arg Leu Asn Thr Ser
385                         390                         395                     400
Glu Leu Ile Lys Glu Leu Phe Thr Asp Cys Gly Pro Leu Glu Ser Ser
            405                         410                         415
Ser Leu Cys Asp Tyr Arg Asn Asp Met Asn Ala Ser Lys Ile Val Asp
            420                         425                         430
Asp Ile Pro Asp Arg Pro Ala Gly Ile Gly Val Tyr Ser Ala Ile Trp
        435                         440                         445
Gln Leu Cys Leu Ala Leu Ile Phe Lys Ile Ile Met Thr Val Phe Thr
    450                         455                         460
Phe Gly Ile Lys Val Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Ile
465                         470                         475                     480
Gly Ala Ile Ala Gly Arg Ile Val Gly Ile Ala Val Glu Gln Leu Ala
                        485                         490                         495
Tyr Tyr His His Asp Trp Phe Ile Phe Lys Glu Trp Cys Glu Val Gly
            500                         505                         510
Ala Asp Cys Ile Thr Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala
        515                         520                         525
Cys Leu Gly Gly Val Thr Arg Met Thr Val Ser Leu Val Val Ile Val
    530                         535                         540
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82

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Phe Glu Leu Thr Gly Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala
545                 550                 555                 560
Val Met Thr Ser Lys Trp Val Gly Asp Ala Phe Gly Arg Glu Gly Ile
                565                 570                 575
Tyr Glu Ala His Ile Arg Leu Asn Gly Tyr Pro Phe Leu Asp Ala Lys
            580                 585                 590
Glu Glu Phe Thr His Thr Thr Leu Ala Ala Asp Val Met Arg Pro Arg
            595                 600                 605
Arg Asn Asp Pro Pro Leu Ala Val Leu Thr Gln Asp Asn Met Thr Val
            610                 615                 620
Asp Asp Ile Glu Asn Met Ile Asn Glu Thr Ser Tyr Asn Gly Phe Pro
625                 630                 635                 640
Val Ile Met Ser Lys Glu Ser Gln Arg Leu Val Gly Phe Ala Leu Arg
                645                 650                 655
Arg Asp Leu Thr Ile Ala Ile Glu Ser Ala Arg Lys Lys Gln Glu Gly
            660                 665                 670
Ile Val Gly Ser Ser Arg Val Cys Phe Ala Gln His Thr Pro Ser Leu
            675                 680                 685
Pro Ala Glu Ser Pro Arg Pro Leu Lys Leu Arg Ser Ile Leu Asp Met
            690                 695                 700
Ser Pro Phe Thr Val Thr Asp His Thr Pro Met Glu Ile Val Val Asp
705                 710                 715                 720
Ile Phe Arg Lys Leu Gly Leu Arg Gln Cys Leu Val Thr His Asn Gly
                725                 730                 735
Arg Leu Leu Gly Ile Ile Thr Lys Lys Asp Ile Leu Arg His Met Ala
                740                 745                 750
Gln Thr Ala Asn Gln Asp Pro Ala Ser Ile Met Phe Asn
            755                 760                 765


<210> 5
<211> 767
<212> PRT
<213> Human

<400> 5
Gly Thr His Tyr Thr Met Thr Asn Gly Gly Ser Ile Asn Ser Ser Thr
 1               5                   10                  15
His Leu Leu Asp Leu Leu Asp Glu Pro Ile Pro Gly Val Gly Thr Tyr
                20                  25                  30
Asp Asp Phe His Thr Ile Asp Trp Val Arg Glu Lys Cys Lys Asp Arg
            35                  40                  45
Glu Arg His Arg Arg Ile Asn Ser Lys Lys Lys Glu Ser Ala Trp Glu
    50                  55                  60
Met Thr Lys Ser Leu Tyr Asp Ala Trp Ser Gly Trp Leu Val Val Thr
65                  70                  75                  80
Leu Thr Gly Leu Ala Ser Gly Ala Leu Ala Gly Leu Ile Asp Ile Ala
                85                  90                  95
Ala Asp Trp Met Thr Asp Leu Lys Glu Gly Ile Cys Leu Ser Ala Leu
                100                 105                 110
Trp Tyr Asn His Glu Gln Cys Cys Trp Gly Ser Asn Glu Thr Thr Phe
            115                 120                 125
Glu Glu Arg Asp Lys Cys Pro Gln Trp Lys Thr Trp Ala Glu Leu Ile
            130                 135                 140
Ile Gly Gln Ala Glu Gly Pro Gly Ser Tyr Ile Met Asn Tyr Ile Met
145                 150                 155                 160
Tyr Ile Phe Trp Ala Leu Ser Phe Ala Phe Leu Ala Val Ser Leu Val
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83

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                    165                         170                         175
     Lys Val Phe Ala Pro Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys
                180                         185                         190
     Thr Ile Leu Ser Gly Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr
                195                         200                         205
     Leu Met Ile Lys Thr Ile Thr Leu Val Leu Ala Val Ala Ser Gly Leu
            210                         215                         220
     Ser Leu Gly Lys Glu Gly Pro Leu Val His Val Ala Cys Cys Cys Gly
     225                         230                         235                         240
     Asn Ile Phe Ser Tyr Leu Phe Pro Lys Tyr Ser Thr Asn Glu Ala Lys
                        245                         250                         255
     Lys Arg Glu Val Leu Ser Ala Ala Ser Ala Ala Gly Val Ser Val Ala
                260                         265                         270
     Phe Gly Ala Pro Ile Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser
                275                         280                         285
     Tyr Tyr Phe Pro Leu Lys Thr Leu Trp Arg Ser Phe Phe Ala Ala Leu
            290                         295                         300
     Val Ala Ala Phe Val Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg
     305                         310                         315                         320
     Leu Val Leu Phe Tyr Val Glu Tyr His Thr Pro Trp Tyr Leu Phe Glu
                        325                         330                         335
     Leu Phe Pro Phe Ile Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Ala
                340                         345                         350
     Phe Phe Ile Arg Ala Asn Ile Ala Trp Cys Arg Arg Arg Lys Ser Thr
                355                         360                         365
     Lys Phe Gly Lys Tyr Pro Val Leu Glu Val Ile Ile Val Ala Ala Ile
            370                         375                         380
     Thr Ala Val Ile Ala Phe Pro Asn Pro Tyr Thr Arg Leu Asn Thr Ser
     385                         390                         395                         400
     Glu Leu Ile Lys Glu Leu Phe Thr Asp Cys Gly Pro Leu Glu Ser Ser
                        405                         410                         415
     Ser Leu Cys Asp Tyr Arg Asn Asp Met Asn Ala Ser Lys Ile Val Asp
                420                         425                         430
     Asp Ile Pro Asp Arg Pro Ala Gly Ile Gly Val Tyr Ser Ala Ile Trp
                435                         440                         445
     Gln Leu Cys Leu Ala Leu Ile Phe Lys Ile Ile Met Thr Val Phe Thr
            450                         455                         460
     Phe Gly Ile Lys Val Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Ile
     465                         470                         475                         480
     Gly Ala Ile Ala Gly Arg Ile Val Gly Ile Ala Val Glu Gln Leu Ala
                        485                         490                         495
     Tyr Tyr His His Asp Trp Phe Ile Phe Lys Glu Trp Cys Glu Val Gly
                500                         505                         510
     Ala Asp Cys Ile Thr Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala
                515                         520                         525
     Cys Leu Gly Gly Val Thr Arg Met Thr Val Ser Leu Val Val Ile Val
            530                         535                         540
     Phe Glu Leu Thr Gly Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala
     545                         550                         555                         560
     Val Met Thr Ser Lys Trp Val Gly Asp Ala Phe Gly Arg Glu Gly Ile
                        565                         570                         575
     Tyr Glu Ala His Ile Arg Leu Asn Gly Tyr Pro Phe Leu Asp Ala Lys
                580                         585                         590
     Glu Glu Phe Glu Phe Thr His Thr Thr Leu Ala Ala Asp Val Met Arg
                595                         600                         605
     Pro Arg Arg Asn Asp Pro Pro Leu Ala Val Leu Thr Gln Asp Asn Met
            610                         615                         620
```

84

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Thr Val Asp Asp Ile Glu Asn Met Ile Asn Glu Thr Ser Tyr Asn Gly
625                 630                 635                 640
Phe Pro Val Ile Met Ser Lys Glu Ser Gln Arg Leu Val Gly Phe Ala
                645                 650                 655
Leu Arg Arg Asp Leu Thr Ile Ala Ile Glu Ser Ala Arg Lys Lys Gln
                660                 665                 670
Glu Gly Ile Val Gly Ser Ser Arg Val Cys Phe Ala Gln His Thr Pro
                675                 680                 685
Ser Leu Pro Ala Glu Ser Pro Arg Pro Leu Lys Leu Arg Ser Ile Leu
                690                 695                 700
Asp Met Ser Pro Phe Thr Val Thr Asp His Thr Pro Met Glu Ile Val
705                 710                 715                 720
Val Asp Ile Phe Arg Lys Leu Gly Leu Arg Gln Cys Leu Val Thr His
                725                 730                 735
Asn Gly Arg Leu Leu Gly Ile Ile Thr Lys Lys Asp Ile Leu Arg His
                740                 745                 750
Met Ala Gln Thr Ala Asn Gln Asp Pro Ala Ser Ile Met Phe Asn
                755                 760                 765


<210> 6
<211> 60
<212> PRT
<213> Xenopus laevis

<400> 6
Met Asp Ile Ser Ser Asp Pro Tyr Leu Pro Tyr Asp Gly Gly Gly Asp
 1               5                  10                  15
Asn Ile Pro Leu Arg Asp Leu His Lys Arg Gly Thr His Tyr Thr Val
                20                  25                  30
Thr Asn Gly Gly Ala Ile Asn Ser Thr Thr His Leu Leu Asp Leu Leu
                35                  40                  45
Asp Glu Pro Ile Pro Gly Val Gly Thr Tyr Asp Asp
    50                  55                  60
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85